

CLAIMS

1. A numerical control unit for machine tools, comprising:

5 a load monitoring section for monitoring a load on an electric motor;

a wear recognizing section for recognizing a current extent of tool wear;

10 a storing section for storing a plurality of preset limit load values corresponding individually to predetermined various extents of tool wear;

15 a calculating section for calculating a current limit load value corresponding to said current extent of tool wear recognized in said wear recognizing section, based on said plurality of preset limit load values stored in said storing section; and

20 a comparing section for comparing the load on the electric motor, monitored in said load monitoring section, to said current limit load value calculated in said calculating section, and for judging on an abnormality of said load.

2. A numerical control unit as set forth in claim 1, wherein said wear recognizing section recognizes said current extent of tool wear by using one parameter selected from a group consisting of a number of times of use of a tool, a duration of cutting by a tool, a distance of cutting by a tool and a number of times of execution of machining program.

3. A numerical control unit as set forth in claim 1, wherein said load monitoring section monitors at least one of maximum value, average value and minimum value of said load in a certain procedure of a machining program.

35 4. A numerical control unit as set forth in claim 3, wherein each of said plurality of preset limit load values stored in said storing section is a preset upper-limit value of said load, and wherein said comparing section compares said maximum value of said load, monitored in said load monitoring section, to said

current limit load value calculated in said calculating section based on a plurality of preset upper-limit values.

5 5. A numerical control unit as set forth in claim
3, wherein each of said plurality of preset limit load
values stored in said storing section is a preset upper-
limit average value of said load, and wherein said
comparing section compares said average value of said
load, monitored in said load monitoring section, to said
10 current limit load value calculated in said calculating
section based on a plurality of preset upper-limit
average values.

6. A numerical control unit as set forth in claim
3, wherein each of said plurality of preset limit load
15 values stored in said storing section is a preset lower-
limit average value of said load, and wherein said
comparing section compares said average value of said
load, monitored in said load monitoring section, to said
current limit load value calculated in said calculating
20 section based on a plurality of preset lower-limit
average values.

7. A numerical control unit as set forth in claim
3, wherein each of said plurality of preset limit load
values stored in said storing section is a preset lower-
25 limit value of said load, and wherein said comparing
section compares said minimum value of said load,
monitored in said load monitoring section, to said
current limit load value calculated in said calculating
section based on a plurality of preset lower-limit
30 values.